# Practice Test Paper - 4

**Name:** **Max Marks: 30**

**Chapter - Quadratic Equations and Probability** **Class - 10**

## 1 Mark

1. Find the value of k for which the quadratic equation kx2 − 5x + k = 0 have real roots.
2. Discriminant of $-x^2 + \frac{1}{2}x + \frac{1}{2} = 0$ is
3. Quadratic equation whose roots are $2 + \sqrt{5},\ 2 - \sqrt{5}$
4. The probability of an event is greater than or equal to _____ and less than or equal to _____.
5. The sum of the probabilities of all the elementary events of an experiment is _____.

## 2 Mark

6. For what value(s) of 'a' quadratic equation $30ax^2 - 6x + 1 = 0$ has no real roots?
7. Which of the following equations has the sum of its roots as 3?
   a. $2x^2 - 3x + 6$
   b. $\sqrt{2}x^2 - \frac{3}{\sqrt{2}}x + 1 = 0$
8. In a single throw of a pair of different dice, what is the probability of getting
   (i) a prime number on each dice? (ii) a total of 9 or 11.

## 3 Mark(any two)

9. Two unbiased coins are tossed simultaneously. Find the probability of getting
   a. One head
   b. One tail
   c. Two heads
   d. At least one head
   e. At most one head
   f. No head

**OR**

Seventeen cards numbered 1,2,3,4,.....16,17 are put in a box and mixed throughly. One person draws a card from box. Find the probability that the number on the card is

   g. Odd
   h. A prime
   i. Divisible by 3
   j. Divisible by 2 and 3 both

10. A jar contains 24 marbles, some are green and others are blue. If a marble is drawn from the jar, the probability that is green is $\frac{2}{3}$. Find the number of blue marbles in the jar.

**4 Mark(any two)**

11. A takes 6 days less than the time taken by B to finish a piece of work. If both A and B together can finish it in 4 days, find the time taken by B to finish the work.(Quadratic formula for CBSE/ Completing square for GSEB)

**OR**

The difference between two numbers is 5 and the difference of their reciprocals is $\frac{1}{10}$ . FInd the numbers.

12. A bag contains 5 red balls and some blue balls. If the probability of drawing a blue ball from the bag is thrice that of a red ball, find the number of blue balls in the bag.

**5 Mark**

13. Solve the equation for x

$\frac{1}{x+1} + \frac{2}{x+2} = \frac{5}{x+4}$ , $x \neq -1, -2, -4$

**OR**

Solve for x: $36x^2 - 12ax + (a^2 - b^2) = 0$

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## Practice Paper 5: Arithmetic Progression and Area Related to Circles

### Self Practice

1. If $2x - 3y = 7$ and $(a + b)x - (a + b - 3)y = 4a + b$ have infinite solutions the $a + b$ ?
2. ABCD is a trapezium with AD ‖ BC and AD = 4cm. If the diagonals AC and BD intersect each other at O such that $\frac{AO}{OC} = \frac{DO}{OB} = \frac{1}{2}$, then BC =?
3. Solve for $x$ and $y$:

$\frac{ax}{b} - \frac{by}{a} = a + b$ ; $ax - by = 2ab$

4. Find the zeroes of the quadratic polynomial $7y^2 - \frac{11}{3}y - \frac{2}{3}$ and verify the relationship between the zeroes and the coefficients.
5. If β and $\frac{1}{\beta}$ are zeroes of the polynomial $(\alpha^2 + \alpha)x^2 + 61x + 6\alpha$ . Find the values of β and α .
6. ABC is a right triangle, right angled at C. If p is the length of the perpendicular from C to AB and a, b, c have the usual meaning, then prove that:

(c) $pc = ab$

(d) $\frac{1}{p^2} = \frac{1}{a^2} + \frac{1}{b^2}$